REMARKS

Claims 1, 6, 8, 16, and 20 have been amended. Claims 1-21 are pending in the case. Further examination and reconsideration of pending claims 1-21 are hereby respectfully requested.

Section 112 Rejections

Claims 1 and 16 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As will be set forth in more detail below, the § 112, second paragraph, rejections of claims 1 and 16 are respectfully traversed.

The Office Action states that "claims 1 and 16 do not set forth any active steps involved in 'correlating', it is unclear what method/process applicant is intending to encompass." (Office Action -- page 2, emphasis in original). Although Applicants believe claims 1 and 16 are definite as originally filed, claims 1 and 16 have been amended for clarification purposes only. Support for the amendments to claims 1 and 16 can be found in the claims as originally filed, for example, in claims 6 and 8. Applicants believe that the amendments to claims 1 and 16 fully address the rationale provided in the Office Action for the rejections of claims 1 and 16 under § 112, second paragraph.

For at least the reasons set forth above, claims 1 and 16 are believed to be definite. Accordingly, removal of the § 112, second paragraph, rejections of claims 1 and 16 is respectfully requested.

Section 102 Rejections

Claims 1, 3, 8, 10, 11, 13-16, and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,829,559 to Bultman et al. (hereinafter "Bultman"). Claims 1, 3, 8, 10, 11, 13, 16, and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S.

Patent No. 6,825,487 to Preece. (hereinafter "Preece"). As will be set forth in more detail below, the § 102 rejections of claims 1, 3, 8, 10, 11, 13-16, and 19 are respectfully traversed.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), MPEP § 2131. The cited art does not disclose all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach correlating a backside defect detected on a specimen with a frontside defect detected on the specimen. Amended independent claim 1 recites in part: "correlating the backside defect with the frontside defect if the portion of the backside defect is determined to be opposite to the portion of the frontside defect." Amended independent claim 16 recites similar limitations.

The Office Action states: "In re claim 1, Bultman et al. teach a computer-implemented method for correlating, by comparing, a backside defect detected on a specimen with a frontside defect detected on a specimen if a portion of the backside defect on a backside of the specimen is opposite to a portion of the frontside defect on a frontside of the specimen." (Office Action -- page 3). Applicants respectfully traverse this assertion. In particular, the basis for the above assertion appears to be that:

> With the comparisons of the presence, the number and the locations of the frontside defects and the backside defects detected on the specimen 40, it would be able to **correlate or show a relationship** between the frontside defects and the backside defects **or to find certain coordinates** of the frontside defects and backside defects; and thus to distinguish if a portion of the backside defects is opposite to a portion of the frontside defects (e.g., if the frontside defects are the mirror image of the backside defects or the frontside defect pattern is similar to the backside defect pattern) because Bultman et al. teach **detecting** the frontside defects and the backside defects…followed by **comparing** the defect data from the frontside and the backside." (Office Action -- pages 3-4, emphasis in original).

However, as set forth in great detail in the Response filed by Applicants on November 16, 2005, which is incorporated by reference as if fully set forth herein, Bultman does not teach comparing the defect data from the frontside of a wafer to the defect data from the backside of the wafer. In addition, Bultman does not explicitly teach that the prior art methods and systems are able to correlate or show a relationship between the frontside defects and the backside defects to distinguish if a portion of the backside defects is opposite to a portion of the frontside defects. Furthermore, the methods and systems of Bultman are not inherently able to correlate or show a relationship between the frontside defects and the backside defects to distinguish if a portion of the backside defects is opposite to a portion of the frontside defects. Therefore, the basis for the Examiner's position set forth in the Office Action is incorrect.

Since Bultman does not explicitly teach that the system of Bultman performs, or is capable of performing, the claimed correlating and since one of ordinary skill in the art would recognize that the system of Bultman is not inherently capable of performing the claimed correlating, the prior art system of Bultman would have to be modified from the teachings of Bultman in order to perform the claimed correlating. In other words, the prior art system of Bultman, in its normal and usual operation, would not necessarily perform the claimed method. Therefore, the claimed method cannot be considered to be anticipated by the prior art system of Bultman. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. *In re King,* 801 F.2d 1324, 231 USPQ 136 (Fed. Cir. 1986). MPEP 2112.02.

For at least the reasons set forth above, Bultman does not teach, explicitly or inherently, that the methods and systems of Bultman are able to correlate or show a relationship between the frontside defects and the backside defects to distinguish if a portion of the backside defects is opposite to a portion of the frontside defects, and no other extrinsic evidence has been provided by the Examiner that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill. Therefore, it appears that the Examiner is basing a claim of inherency on probabilities or possibilities. However, inherency may not be established by probabilities or possibilities. Furthermore, even if the methods and systems of Bultman could possibly be altered or modified to perform the claimed correlating, such a possibility is not sufficient to establish inherency. Moreover, the fact that the methods and systems of Bultman would have to be altered in order for those systems and methods to be able to perform the claimed correlating is evidence that the methods and systems of Bultman are not inherently able to perform the claimed correlating. "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). MPEP 2112(IV.).

Preece discloses a method for isolation of wafer support-related crystal defects. Preece, however, does not disclose correlating a backside defect detected on a specimen with a frontside defect detected on the specimen. In particular, Preece teaches detecting defects on a frontside and a backside of wafers and performing various measurements on the defects on the frontside and backside of the wafers. (See, for example, Preece -- col. 4, line 56 to col. 5, line 3). However, Preece does not teach using information from such detecting and measurements to correlate a backside defect detected on a specimen with a frontside defect detected on the specimen. In addition, Preece teaches correlating defects detected on different wafers to separate wafer-support related defects from pre-existing or pre-processing defects. (See, for example, Preece -- col. 2, lines 51-67). However, Preece does not teach correlating defects detected on different sides of the same specimen. Furthermore, correlating defects detected on different wafers as taught by Preece does not inherently include correlating defects detected on different sides of the same specimen. As such, Preece does not teach correlating a backside defect detected on a specimen with a frontside defect detected on the specimen, as recited in claims 1 and 16. Consequently, Preece does not teach all limitations of claims 1 and 16.

For at least the aforementioned reasons, claims 1 and 16 are not anticipated by the cited art. Therefore, claims dependent therefrom are also not anticipated by the cited art for at least the same reasons. Accordingly, removal of the § 102 rejections of claims 1, 3, 8, 10, 11, 13-16, and 19 is respectfully requested.

Section 103 Rejections

Claims 1-3, 8, 10-16, and 19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,156,580 to Wooten et al. (hereinafter "Wooten"). Claims 2, 4, 12, 20, and 21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Preece. As will be set forth in more detail below, the §103(a) rejections of claims 1-4, 8, 10-16, and 19-21 are respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPEP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond,* 910 F.2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The available cited art does not teach or suggest correlating a backside defect detected on a specimen with a frontside defect detected on the specimen, as recited in claims 1 and 16. Amended independent claim 20 recites similar limitations. Wooten teaches a semiconductor wafer analysis system and method. However, Wooten does not disclose correlating a backside defect detected on a specimen with a frontside defect detected on the specimen. The Office Action states:

> Although Wooten et al. do not expressly teach correlating a back-side defect with a front-side defect detected a specimen, one of the ordinary skill in the art would have comprehended that by **reviewing** the front-side and back-side defects and **coordinating** the front-side and back-side defects it would imply determining a qualitative and/or quantitative **correspondence or relationship** between the front-side defect and the back-side defect. (Office Action -- page 8, emphasis in original).

Applicants respectfully traverse this assertion. In particular, to support this assertion, the Office Action states: "[i]n re claim 1, Wooten et al. teach a computer-implemented method … to **determine** if these defects present certain **coordination** (col. 3, lines 59-61 and col. 4, lines 14-16)." Office Action -- pages 7-8, emphasis in original). However, Wooten states that "the data may include the coordinates on the wafer at which reflected laser light having certain characteristics is detected. In an example embodiment, the characteristics are indicative of a defect. Thus, at laser inspection station 104, front side laser inspection data is gathered." (Wooten -- col. 3, lines 59-64). Therefore, Wooten teaches determining the coordinates of a front side defect on a front side of a wafer. Similarly, Wooten teaches determining the coordinates of a back side defect on a back side of a wafer. (*see*, for example, Wooten -- col. 2, lines 1-3).

However, Wooten does not teach or suggest using the coordinates of the front side defect and the back side defect to "determine if these defects present certain coordination" or for "coordinating the front-side and back-side defects" as suggested in the Office Action. Instead, Wooten simply teaches using the coordinates determined from inspection data to locate the defects in a defect review tool. For example, Wooten states that "if for a particular wafer the front side inspection data indicates that a defect may be present at a certain coordinate, it is desirable to visually review the defect area and judge whether the defect makes the wafer unusable." (Wooten -- col. 4, lines 14-19). Therefore, Wooten does not teach or suggest determining if front side and back side defects on a specimen "present certain coordination" as suggested in the Office Action. Moreover, since Wooten does not teach or suggest coordinating front-side and back-side defects, the teachings of Wooten cannot imply determining a qualitative and/or quantitative correspondence or relationship between the front-side defect and the back-side defect as suggested in the Office Action.

As indicated above, Preece discloses correlating defects detected on different wafers to separate wafer-support related defects from pre-existing or pre-processing defects. However, Preece does not suggest or provide motivation for correlating a backside defect detected on a specimen with a frontside defect detected on the specimen, as recited in claims 1, 16, and 20. In addition, the Office Action states that "with Preece's teachings one of ordinary skill in the art would be able to analyze data representative spatial characteristics of backside defects followed by determining the signature of the processing tool in order to remove the signature of the processing tool from the backside defect data since by this manner it would be able to filter out the data noise and thus to obtain true backside defect data." (Office Action -- page 12). However, the fact that the claimed invention is within the capabilities of one of ordinary skill in the art (or that one of ordinary skill in the art would be able to perform the claimed invention based on the teachings of the prior art) is not sufficient by itself to establish *prima facie* obviousness. A statement that modifications of the prior art to meet the claimed invention would have been "'well within the ordinary skill of the art at the time the claimed invention was made'" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex Part Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. In other words, to establish a *prima facie* case of obviousness, three basic criteria must be met. In this case, at least the third criteria required to establish a *prima facie* case of obviousness (the prior art reference or references must teach or suggest all the claim limitations) has not been met. MPEP 2142.

For at least the reasons set forth above, none of the cited art, either individually or in any combination thereof, teaches or suggests correlating a backside defect detected on a specimen with a frontside defect detected on the specimen, as recited in claims 1, 16, and 20. Consequently, the cited art does not teach or suggest all limitations of claims 1, 16, and 20.

For at least the reasons stated above, claims 1, 16, and 20, as well as claims dependent therefrom, are patentably distinct over the cited art. Accordingly, removal of the § 103 rejections of claims 1-4, 8, 10-16, and 19-21 is respectfully requested.

Allowable Subject Matter

Claims 5-7, 9, 17, and 18 were objected to as being dependent upon a rejected base claim, but were deemed allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants appreciate the Examiner's indication of allowable subject matter; however, as set forth in detail herein, it is believed that the present claims are allowable over the cited art in their present form.

CONCLUSION

This response constitutes a complete response to all issues raised in the Office Action mailed July 5, 2006. In addition, the art cited but not relied upon is not believed to be pertinent to the patentability of the present claims. In view of the remarks presented herein, Applicants assert that pending claims 1-21 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned earnestly requests a telephone conference.

The Commissioner is authorized to charge any required fees or credit any overpayment to deposit account number 50-3268/5589-04901.

Respectfully submitted,
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